

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



528412

(43) International Publication Date  
29 April 2004 (29.04.2004)

PCT

(10) International Publication Number  
WO 2004/035502 A2

- (51) International Patent Classification<sup>7</sup>: C04B 35/00
- (21) International Application Number:  
PCT/EP2003/011064
- (22) International Filing Date:  
23 September 2003 (23.09.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
0222344.4 26 September 2002 (26.09.2002) GB
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- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,  
SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN,  
YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**  
— *without international search report and to be republished  
upon receipt of that report*
- For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: GRADED PARTICULATE COMPOSITIONS

(57) Abstract: A method of forming a particle mass comprising at least two particle populations arranged in a desired graded relationship, comprising: forming in a container a first layer of dry particles constituting a first particle population having a desired particle size distribution, superimposing on the first layer a second layer of dry particles constituting a second particle population having a desired particle size distribution, the second layer being in direct contact with the first layer at a contact interface, and causing the particle mass in the container to vibrate to cause a desired degree of migration of particles from one or both layers across the contact interface under the influence of force experienced by particles in the mass. The particle populations may have different physical and/or chemical properties, so that the particle mass is functionally graded for subsequent fusion into a functionally graded material such as a ceramic or ceramic/metal composite.

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